



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/818,123

03/27/2001

Frank Sauer

2001P05535US

8633

7590 06/01/2009
Siemens Corporation
Intellectual Property Department
186 Wood Avenue South
Iselin, NJ 08830

EXAMINER

HARRISON, CHANTE E

ART UNIT

PAPER NUMBER

2628

MAIL DATE

DELIVERY MODE

06/01/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FRANK SAUER

Appeal 2009-0667
Application 09/818,123
Technology Center 2600

Decided:¹ June 1, 2009

Before KENNETH W. HAIRSTON, JOHN A. JEFFERY, and
BRADLEY W. BAUMEISTER, *Administrative Patent Judges*.

BAUMEISTER, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134 (2002) from the Examiner's final rejection of claims 31-40. We have jurisdiction under 35 U.S.C. § 6(b) (2002). We reverse.

A. Appellant's invention

Appellant's invention relates to

[a]n augmented reality system [that] allows a user to determine the depth of an instrument being inserted into an object from an external perspective. An augmented reality view is presented by overlaying a virtual graphics guide onto a real view of the object and an instrument. The graphics guide comprises a virtual depth marker located outside of the object. The instrument is aligned to the graphics guide. The instrument is inserted to a depth determined in the augmented view by alignment of a predetermined feature of the instrument with the virtual depth marker. The feature is located along the length of the instrument at a certain distance from the instrument tip and remains external to the object during insertion.

(App. Br. 2).

B. The claims

Independent claim 31 is illustrative.² It reads as follows:

² Appellant argues claims 31-35 together as a first group and claims 36-40 together as a second group. *See* Br. 4-7. Accordingly, we select independent claims 31 and 36 as representative of the respective groups. *See* 37 C.F.R. § 41.37(c)(1)(vii).

31. A method for augmented reality guided positioning of a real instrument tip within a real target located in a real object comprising the steps of:

presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of the real object and a real instrument, the graphics guide comprising a virtual depth marker located outside of the real object;

aligning the real instrument to the graphics guide;

inserting the real instrument to a depth determined in the augmented view by alignment of a predetermined real feature of the real instrument with the virtual depth marker, the real feature being located along the length of the real instrument at a certain distance from the real instrument tip, and remains external to the real object during insertion.

C. The references and rejections

The Examiner relies on the following prior art references to show unpatentability:

Simon	US 6,470,207 B1	Oct. 22, 2002
		(filed Mar. 23, 1999)

Billinghurst et al., *The Expert Surgical Assistant: An Intelligent Virtual Environment with Multimodal Input*, in PROCEEDINGS OF MEDICINE MEETS VIRTUAL REALITY IV, 590-607.³

³ No publication date appears within the Billinghurst article. In addition, The Notice of References Cited form (PTO-893), associated with the Final Office Action mailed Mar. 14, 2007, cites the Billinghurst article incompletely, also failing to indicate any publication date. However, Appellant does not challenge whether Billinghurst constitutes prior art. As such, this argument is deemed to be waived. See 37 C.F.R. § 41.37(c)(1)(vii).

Claims 31-40 stand rejected under 35 U.S.C. § 103(a) as obvious over Billingham in view of Simon.

Rather than repeat the arguments of the Appellant or the Examiner, we refer to the Brief and the Answer for their respective details.⁴ In this decision, we have considered only those arguments actually made by Appellant. Arguments which Appellant could have made but did not make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

ISSUES

The Examiner asserts that Billingham discloses (1) “presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of the real object and a real instrument (figure 2.0, pp. 596)” (Ans. 4) and (2) “a rendering device (120, computer, which Examiner interprets as a rendering device) for rendering the virtual graphics guide onto a real view of the object *an instrument*”⁵ (col. 8, lines 30-36)” (emphasis added) (Ans. 6).

Appellant asserts that Billingham and Simon do not render the claims obvious as they do not teach all of the claimed elements (App. Br. 4). More specifically, Appellant asserts that “both Billingham and Simon fail to teach, disclose or suggest aligning a virtual depth

⁴ We refer to (1) the Appeal Brief filed Sept. 21, 2007; (2) the Examiner’s Answer mailed Dec. 27, 2007; and (3) the Reply Brief filed Feb. 13, 2008 throughout this opinion.

⁵ *Cf.* claim 36 (reciting that the rendering device is “for rendering the virtual graphics guide onto a real view of the real object and a *real instrument*” (emphasis added)).

marker with a real feature of a real instrument such that the real feature remains external to the real object during insertion” (App. Br. 6-7).

The issues before us, then, are:

- I. Has Appellant shown that the Examiner erred in finding that the cited prior art collectively teaches or suggests “presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of the real object and a real instrument,” as required by claim 31?
- II. Has Appellant shown that the Examiner erred in finding that the cited prior art collectively teaches or suggests a rendering device that is capable of rendering the virtual graphics guide onto a real view of the real object and a real instrument as required by claim 36?

FINDINGS OF FACT

The record supports the following Findings of Fact (FF) by a preponderance of the evidence:

1. Billinghurst discloses that “[t]he computer [of Billinghurst’s system] interactively displays a virtual probe overlaid on the CT scan images, the tip of which moves in concert with a real probe guided in and around the [patient’s] head.” (Billinghurst, 595, NAVIGATION AND INSTRUMENT LOCATION ¶ 1; fig. 1.0).
2. Billinghurst does not disclose or suggest presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of the real object and a real instrument.

3. Simon teaches an imaging system for assisting “physicians performing surgery by displaying real-time or pre-acquired images, such as fluoroscopic x-ray images, of patient 110 on display 121. Representations of surgical instruments 140 are overlaid on pre-acquired fluoroscopic images of patient 110 based on the position of the instruments determined by tracking sensor” (Simon, col. 8, ll. 30-36).

4. Simon does not disclose or suggest presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of the real object and a real instrument.

PRINCIPLES OF LAW

1. “Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007).

2. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). If the Examiner’s burden is met, the burden then shifts to the Appellant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the

evidence as a whole and the relative persuasiveness of the arguments.
See In re Oetiker, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

3. To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggest by the prior art. *See In re Royka*, 490 F.2d 981, 985 (CCPA 1974).

4. A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (BPAI 1987) (non-precedential).

ANALYSIS

I.

The Examiner asserts that Billingham discloses “presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of the real object and a real instrument (figure 2.0, pp. 596)” (Ans. 4). However, Billingham actually discloses that “[t]he computer [of Billingham’s system] interactively displays a *virtual* probe overlaid on the CT scan images, the tip of which moves in concert with a real probe guided in and around the [patient’s] head.” (FF 1 (emphasis added)). Billingham does not disclose or suggest presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of the real object and a *real* instrument (FF 2).

The Examiner further asserts that Simon teaches a computer 120 “(which Examiner interprets as a rendering device) for rendering the virtual graphics guide onto a real view of the object and an

instrument (col. 8, lines 30-36)” (Ans. 6). However, this position is also incorrect. This cited passage of Simon actually teaches an imaging system for assisting “physicians performing surgery by displaying real-time or pre-acquired images, such as fluoroscopic x-ray images, of patient 110 on display 121. *Representations* of surgical instruments 140 are overlaid on pre-acquired fluoroscopic images of patient 110 based on the position of the instruments determined by tracking sensor” (FF 3 (emphasis added)). Simon does not disclose or suggest presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of the real object and a *real* instrument (FF 4).

In contrast, claim 31 recites the step of “overlaying a virtual graphics guide onto a real view of the real object and a *real instrument*.” As neither Billinghamst nor Simon discloses presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of the real object and a *real* instrument, the Examiner has failed to establish that the prior art teaches every element of the invention as set forth in claim 31. As such, the Examiner has failed to establish why it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the prior so as to overlay a virtual graphics guide onto a real view of a real instrument. Accordingly, the Examiner has failed to establish a *prima facie* showing of obviousness for method claim 31.

II.

Apparatus claim 36 recites, among other elements, a rendering device having specified functionality: that is, a rendering device that *is capable of* “rendering the virtual graphics guide onto a real view of the real object and a real instrument.” *See Masham*, 2 USPQ2d 1647. As noted in Section I of the Analysis above, neither Billingham nor Simon discloses presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of the real object and a *real* instrument. Further, the Examiner has not set forth any evidence that, or rationale why, either of the cited references would nonetheless be at least capable of performing this claimed functionality. As such, the Examiner has also failed to establish a *prima facie* showing of obviousness for apparatus claim 36.

For the foregoing reasons, Appellant has persuaded us of error in the Examiner’s obviousness rejection of representative claims 31 and 36. Accordingly, we will reverse the Examiner’s rejection of those claims and dependent claims 32-35 and 37-40.

CONCLUSION OF LAW

I. Appellant has shown that the Examiner erred in finding that the cited prior art collectively teaches or suggests “presenting an augmented reality view by overlaying a virtual graphics guide onto a real view of a real object and a real instrument,” as required by claim 31.

II. Appellant has shown that the Examiner erred in finding that the cited prior art collectively teaches or suggests a rendering device that

Appeal 2009-0667
Application 09/818,123

is capable of rendering the virtual graphics guide onto a real view of a real object and a real instrument,” as required by claim 36.

Accordingly, Appellant has shown that the Examiner erred in rejecting claims 31-40 under § 103.

DECISION

We do not sustain the Examiner's rejections with respect to all pending claims on appeal. Therefore, the Examiner's rejection of claims 31-40 is reversed.

REVERSED

gvw

SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
186 WOOD AVENUE SOUTH
ISELEN, NJ 08830